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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/077,880	02/20/2002	Yoshihumi Matsuda	ASA-1066	6441

7590

09/03/2003

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EXAMINER

RICKMAN, HOLLY C

ART UNIT

PAPER NUMBER

1773

DATE MAILED: 09/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application N .

10/077,880

Applicant(s)

MATSUDA ET AL.

Examiner

Holly Rickman

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) 5 and 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Claims 5-6 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected method, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 4.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fullerton et al. (US 6383668) in view of Sakawaki et al. (US 2002/0160234).

Fullerton et al. disclose a magnetic recording medium having an underlayer of CrTi formed on a NiP-plated substrate, a first ferromagnetic layer, a Ru intermediate layer, and a second ferromagnetic layer formed thereon (col. 3, lines 1-18; col. 5, lines 36-37). The reference teaches that the ferromagnetic layers are formed from CoPtCrB alloys having 4-25 at% Pt (col. 3, lines 34-37).

Fullerton et al. fails to teach the use of an amorphous film containing Ta and Ni and oxygen formed between the substrate and the CrTi layer and the amount of Ti present in the CrTi layer.

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Sakawaki et al. teach the use of NiTa layer containing oxygen as an orientation determining layer under a Cr-based underlayer wherein the NiTa layer causes the Cr underlayer to have predominant orientation plane of (200) plane thus allowing the overlying magnetic layers to have a (110) orientation (paragraphs [0031]-[0038] and [0086]-[0087]).

It would have been obvious to one of ordinary skill in the art at the time of invention to add a NiTa layer underneath the CrTi layer taught by Fullerton et al. in order to provide the recording medium with the preferred (200) orientation for the underlayer and the preferred (110) orientation for the magnetic layers.

With respect to claim 3, Sakawaki teaches that it is preferable to use 1-50 at % Ti in the CrTi layer underlying the NiTa layer. The reference teaches that the amount of Ti affects the magnetic anisotropy of the overlying magnetic layer (see [0073]).

It would have been obvious to one of ordinary skill in the art at the time of invention to choose the optimal amount of Ti to add to the CrTi layer taught by Fullerton et al. it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

*In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

#### ***Allowable Subject Matter***

4. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (703) 305-2642. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul J. Thibodeau can be reached on (703) 308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Holly Rickman  
Primary Examiner  
Art Unit 1773

hcr  
August 29, 2003